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EXAMINER

KEEHAN, CHRISTOPHER M

ART UNIT

PAPER NUMBER

1712

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/006,418

Applicant(s)

OTTINGER ET AL.

Examiner

Christopher M. Keehan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 24-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-23 and 43-45 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-23, and 43-45 drawn to a resin-impregnated article, classified in class 428, subclass 413.
- II. Claims 24-42, drawn to a process of making a resin-impregnated article, classified in class 427, subclass 386.

The inventions are distinct, each from the other because of the following reasons:

Inventions of I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process, such as not converting to an intermediate B stage state and shaping before or after curing.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Laurence Greenberg on April 8, 2003, a provisional election was made without traverse to prosecute the invention of group I, claims 1-23, and 43-45. Affirmation of this election must be made by applicant in

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replying to this Office action. Claims 24-42 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Examiner's Suggestions

The following are suggestions by the examiner to create a clearer prosecution record. These suggestions are not objections or rejections, but merely some things that might prove helpful upon consideration by applicant.

In claims 1 and 20, the claim language "at least partially recompressed expanded graphite" seems confusing. By "at least partially recompressed" it appears this can read on more than partially recompressed, such as totally recompressed. Although applicant further claims "said graphite containing," which shows that the graphite must be at least somewhat expanded, this still appears unclear. In claim 13, applicant refers to "modified isocyanate resin systems" in claim 1, but claim 1 does not contain "modified" resin systems.

In claim 23, the claim language "electrically conductively contactable" appears confusing.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 21 claims resin systems "only in regions close to the surface or in part of the body." It is not clear how a resin-impregnated body, can only have resin in areas as instantly claimed. It is the examiner's position that impregnation by resin is a thorough penetration of the resin into and through the chosen substrate, and if resin only penetrates to regions close to the surface or in part of the body, then it is not impregnation as claimed in claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Olstowski et al. (3.573,122). Regarding claims 1 and 2, Olstowski et al. disclose a synthetic-resin impregnated body comprising expanded graphite, the graphite containing epoxy resin (col.3, lines 25-43), more specifically bisphenol A diglycidyl ether (col.8, Runs B and C).

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Regarding claim 5, Olstowski et al. disclose a latent catalyst (col.8, Runs B and C). It is the examiner's position that the curing agent of Olstowski et al. acts in the latent form, as the curing takes place over a 24-hour period.

Regarding claim 19, Olstowski et al. disclose adding filler as instantly claimed (col.8, Run B).

Claims 6-10, 14-18, 20, and 43-45 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Olstowski et al. (3.573,122). Olstowski et al., as applied above, are as set forth and incorporated herein. Regarding claims 6-10, 14, and 15, Olstowski et al. do not appear to specifically disclose the instantly claimed viscosities and storage stabilities. However, it appears that Olstowski et al. inherently disclose these viscosities and storage stabilities because the composition of Olstowski et al. is the same as that claimed by applicant, and the same materials would have yielded the same inherent properties. If not inherent, then it would have been obvious to one of ordinary skill in the art at the time the invention was made for the epoxy of Olstowski et al. to have at least similar viscosities and storage stabilities, because the composition of Olstowski et al. is at least similar to that of applicant, and at least similar materials would have yielded at least similar inherent properties.

Regarding claims 16-18, it appears that Olstowski et al. do not specifically disclose the instantly claimed amount of resin in the resin-impregnated body. However, it appears this is inherently disclosed because the same materials are used in Olstowski

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et al. as in the instant invention, and the same materials would have yielded the same amount of resin impregnated in the same body of expanded graphite. If not inherently disclosed, then it would have been obvious to one of ordinary skill in the art at the time the invention was made for the impregnated body of Olstowski et al. to have an at least similar amount of resin as the materials of Olstowski et al. are at least similar to those of applicant's, and at least similar materials would have yielded at least similar inherent behavior of the resin in the impregnated body.

Regarding claim 20, Olstowski et al. inherently disclose the instantly claimed limitations (col.8, Runs B and C). If not inherent, then it would have been obvious to one of ordinary skill in the art for the article of Olstowski et al. to possess the instantly claimed characteristics because the materials of Olstowski et al. are at least similar to those of applicant's, and at least similar materials would have yielded at least similar characteristics.

Regarding claims 43-45, the same reasoning as set forth for claim 1 above (Olstowski et al.) also applies to claims 43-45, as the claimed subject matter is essentially the same, except for the instantly claimed intended use limitations. The intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olstowski et al. (3,573,122) in view of Amano et al. (5,679,730). Olstowski et al. do not appear to disclose methylhexahydrophthalic anhydride. Amano et al. disclose an epoxy resin (col.2, lines 11-22) comprising expanded graphite powder (col.2, lines 36-37) and cured by methylhexahydrophthalic anhydride (col.4, lines 33-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the curing agent of methylhexahydrophthalic anhydride as taught by Amano et al. to be substituted in the epoxy of Olstowski et al. because Amano et al. teach that a curing agent of methylhexahydrophthalic anhydride produces a cured epoxy with excellent heat resistance resulting in a higher quality product.

Regarding claim 13, Olstowski et al. do not specifically disclose a latent curing agent with isocyanate. Amano et al. disclose an isocyanate resin (col.3, lines 17-25) comprising expanded graphite powder (col.2, lines 36-37) and cured by dicyandiamide (col.4, lines 51-57). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added the dicyandiamide as taught by Amano et al. to the composition of Olstowski et al. because Amano et al. teach that using

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dicyandiamide as a latent curing agent produces a one-pack composition, resulting in a more efficient product.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olstowski et al. (3.573,122) in view of Introduction to Synthetic Polymers (Campbell). Olstowski et al., as applied above, are as set forth and incorporated herein. Olstowski et al. do not appear to specifically disclose diphenylmethane diisocyanate. Olstowski et al. disclose a polyurethane polymer (col.3, lines 39-43). It is the examiner's position that diphenylmethane diisocyanate is a synonym for methylene diphenyl diisocyanate, or MDI. Campbell provides the teaching that a typical reaction to produce a polyurethane involves MDI reacted with a polyol (page 156, Figure 8.7.). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the polyurethane of Olstowski et al. to contain at least some MDI as instantly claimed because the known reaction, unless proceeded entirely to completion, would still have MDI present.

Claims 3, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olstowski et al. (3.573,122). Regarding claim 3, Olstowski et al. do not appear to specifically disclose bisphenol F diglycidyl ether. However, Olstowski et al. do disclose bisphenol A diglycidyl ether. It would have been obvious to one of ordinary skill in the art at the time the invention was made for Olstowski et al. to have applied bisphenol F diglycidyl ether in place of bisphenol A diglycidyl ether because bisphenol F diglycidyl

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ether is an obvious homologue of bisphenol A diglycidyl ether and has a lower molecular weight, the bisphenol F only having hydrogens bonded to the carbon linking the phenol groups while bisphenol A has methyl groups, and the lower molecular weight of bisphenol F diglycidyl ether would result in a composition with a lower viscosity, thereby allowing easier impregnation.

Regarding claim 21, Olstowski et al. do not appear to disclose resin in regions close to the surface or in part of the body. However, this appears to be an obvious design modification and it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied resin in regions close to the surface or in part of the body as instantly claimed through routine soaking of the body and the amount of time the body is soaked in the resin.

Regarding claim 22, Olstowski et al. disclose cured polymer resin of epoxy and polyurethane(col.8, Run C, and col.3, lines 25-43).

Regarding claim 23, Olstowski et al. do not disclose a continuous resin surface and disclose a body as claimed (Abstract).

Allowable Subject Matter

Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. A reasonable search of the prior art of record failed to reveal the limitations as set forth in claim 12, specifically a synthetic resin-impregnated body comprising a resin system comprising diphenyl diisocyanate (MDI)

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and bis(4,4-glycidyoxyphenyl)propane, which it appears is a synonym for bisphenol A glycidyl ether. The prior art of record does not appear to teach or disclose these together as claimed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hatch et al. (6,531,236 B1) disclose a resin-impregnated expanded graphite body wherein the resin contains isocyanate or epoxy groups. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Keehan whose telephone number is (703) 305-2778. The examiner can normally be reached on Monday-Friday, from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert A. Dawson can be reached on 308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Christopher Keehan *CMK*

April 14, 2003



Robert Dawson
Supervisory Patent Examiner
Technology Center 1700